

## PUBLIC UTILITIES COMMISSION

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## PUBLIC WORKSHOP MINUTES

## Discussion of Public Tool to Evaluate Customer-Generation Successor Tariff or Contract Options

August 11, 2014, 10:00am – 4:30pm  
California Public Utilities Commission  
505 Van Ness Avenue – Auditorium  
San Francisco, CA 94102

*Documents available on CPUC's [NEM Successor Tariff or Contract Webpage](#).*

### I. Introduction and Overview

(Ehren Seybert - CPUC)

- Background information on net energy metering (NEM) program in California and Assembly Bill (AB) 327 (Perea, 2013).
- The purpose of this workshop is to:
  - 1.) Present a proposed approach for evaluating successor tariff or contract options that:
    - a. Addresses the requirements set forth in AB 327;
    - b. Builds on the issues raised during the April 23<sup>rd</sup> workshop and subsequent comments; and,
    - c. Details the capability and functionality of a Public Tool.
  - 2.) Solicit stakeholder feedback and answer clarifying questions on the proposed approach.
- NEM Proceeding and timing issues
  - Process to become a party or request 'information only' to the rulemaking.
  - Anne Simon is the Assigned Law Judge; Michael Picker is the Assigned Commissioner.

- Formal comments will be requested on the Public Tool, followed by the prehearing conference, scoping memo, and additional formal comments as needed.

## **II. Overview of Proposed Approach**

### **(Snaller Price – E3)**

#### E3 Presentation

- Introduction
  - Overview of E3, LBNL and Advent team.
  - AB 327 is a balancing act between ensuring a ‘sustainable’ distributed generation (DG) market and minimizing cost shifting. The current focus is determining what metrics should be used to assess those two goals.
- Why develop a Public Tool?
  - Provides common language to support multi-party discussion.
  - The goal is not to design an optimization tool to pick the ‘best’ answer, but to provide guidance to help inform stakeholders and policymakers.
  - Existing data includes hourly intervals for over 100,000 solar customers.
  - FINDER tool will be used to forecast utility revenue requirements over the long-term. Data request has already been provided to the three investor-owned utilities (IOUs).
  - Final Public Tool may include a single worksheet, or a separate worksheet for each IOU.
- The residential rates OIR is considering the impacts of overall rate designs from a broader sense, while we are focused on the cost impacts specific to the renewable DG market.
- Usability is an important component of the Public Tool. For stakeholders that don’t want to use the tool, we are also proposing to produce a final report that contains the range of results from the tool.

## Stakeholder Discussion

- **Question:** *Is there a way to provide a way to look at the total societal impact in the balancing act between the solar market and impact on all customers (slides 11 & 12)?*
  - The tool will include a total resource cost (TRC) test.
  - It will be possible to add on different benefits, including a user-defined societal value.
  - The TRC/societal test is a discussion of the broader impacts of the resources in California.
- **Question:** *Will the FINDER tool be constrained to having NEM customers be on the same residential rate tariff, or can there be a NEM tariff in its own right?*
  - This has been contemplated, and the current straw proposal is not to model NEM customers as a separate class.
- **Question:** *Will there be sensitivities on the IOU revenue requirements? The IOUs are not altering their procurement plans based on the expected decrease demand from time-of-use (TOU) rates.*
  - E3 can do a sensitivity analysis. A GRC looks out 3-5 years; the straw proposal is proposing to look out to 2050.
  - The magnitude of the revenue requirement will not be fundamental to the cost shift.
  - **Follow-up Comment:** *There may not be a 'cost shift' problem, so the discussion should not be framed this way. There have been many studies, including the most recent E3 NEM study, demonstrating that customer-generators are meeting their own cost of service (COS).*
- **Question:** *Why is it necessary to wait for the final decision in the retail rates OIR before releasing the tool?*
  - The tool will be released before the final decision in the rates OIR; an update to the tool will accompany the report with the range of results using the rates established in the rates OIR once a decision has been adopted.
- **Question:** *Might the internal tool (FINDER model) include complexities that won't be included in the public tool? Would like to see the COS analysis that was conducted in the 2013 NEM study. If this is not in the tool, it should be made available in the report at a minimum.*
  - The straw proposal had not intended to do this, but E3 could include this, pending support from the Commission.

- It is pretty atypical to look at each rate class and break out all of the classes applicable in NEM, which would be required for a full COS analysis.
- **Question:** *Is there any coordination with the California Energy Commission (CEC) on forecasted demand?*
  - E3 has been coordinating with the CEC on demand, which is also used in the LTPP.
  - The CEC also collects information on the forecasts by IOU that are more long-term than the GRCs.
- **Question:** *All behind the meter generation must be backed up by the IOUs, according to FERC. SB 43, the green tariff, looks into having customers pay the PCIA, with no cost shifting.*
  - What happens to the cost of integrating solar at higher penetration levels? E3 does not have a definitive answer.
  - Regarding the green tariff, exploring community solar was contemplated for the Public Tool. The straw proposal is not to do this because of the significant tasks already associated with evaluating behind-the-meter generation.
- **Question/comment:** *Suggest greater coordination between the Public Tool and the Distribution Resources Plan.*
  - (Ehren) Energy Division staff have been coordinating closely on this issue, but both proceedings are still in early development.
- **Question:** *How will the residential rates proceeding fit into this proceeding, since the public tool will not be completed until the end of the year? Since there is already a record in the other case, the two proceedings should be separate.*
  - The Public Tool won't be final until the final decision in the residential rates OIR, but the draft version of the tool will be available in December.
  - (Ehren) Information from the Public Tool will be publicly available, but it will not be within the formal record of the retail rates OIR.
- **Question:** *Will the tool be able to incorporate shifting TOU periods?*
  - Yes, but the TOU periods will need to be specified ahead of time.
  - E3/LBNL request that specific TOU definitions be proposed in stakeholder comments.
- **Question:** *Will the model have a value for system integration? Where will this value come from, and how will it track activities in other proceedings?*

- The straw proposal plans to have an integration cost, using the best information available at the time.
  - E3 hasn't seen the CAISO numbers, but if they seem like the best available data they will be used.
  - Could be a good case for a sensitivity analysis.
- **Question:** *Will the tool reuse the data set from the 2013 study? How relevant is this data given recent solar PV growth? What about errors, since the sample population may be different? Will the data set be made available?*
  - Yes, the straw proposal is to reuse the data set from the 2013 study, which includes over 100,000 solar and non-solar customers. The data goes back to 2007 through the end of 2012.
  - If customers in the future look like they do today, then the forecast will be OK. Parties would just need to be aware that forecasted changes in behavioral change are not captured in historical data.
  - The underlying data set contains confidential customer information, and will not be made publically available.
- **Question:** *How are you going to forecast utility revenue requirements? It greatly depends upon what the utility of the future looks like: Where will customers be getting their power? Will it be centralized or decentralized? Will this be looked at when taking different scenarios in the FINDER model?*
  - Yes, E3 thinks this can be captured.
  - Forecast starts with the most recent LTPP case, which incorporates increased DG adoption. Users also have the ability to input higher adoption rates.
- **Question:** *Are you looking at the existing NEM population and the looking at the cost shift, or are you looking at the remaining population and then looking at the economic drivers for them?*
  - E3 is looking at both, and has asked for the class load shapes from the IOUs.
  - E3 will be using individual information on who adopts to have a sense of the overall class load shape changes based on the adoption changes.

### III. Modeling Approach

(Snuller Price – E3; Andy Satchwell - LBNL)

#### E3/LBNL Presentation

- Differences between this project and the 2013 NEM study
- The FINDER model
  - Work began in 2007, and has been used in many states.
  - Bottom-up approach based on utility cost categories.
  - Provides metrics to be able to evaluate DG growth rates (total solar PV generation or market share), impact on other customers, profit levels of 3<sup>rd</sup> party providers and payback periods or IRR.
- The tool will allow users to change the primary metrics, as well as additional proposed metrics (such as user-defined job benefits, environmental benefits, etc.), and will then recalculate the total benefits and cost-effectiveness.

#### Stakeholder Discussion

- **Question:** *If a solar system is only operating during the first half of peak hours, does it get half or full credit? How does the model deal with distribution benefits, since they can differ substantially?*
  - The model will use an effective load carrying capability (ELCC) model. The ability to add solar over time changes; as you add more solar over time, you need less and less capacity during that time, so the incremental value of DG decreases.
  - The model looks at system level, while distribution level benefits are accounted for by sensitivity.
- **Question:** *Will the tool start with the avoided cost calculator used in the 2013 NEM study? There were a number of questions on the avoided cost issues raised during comments, and also a few issues that could not be addressed in the 2013 study (e.g., avoided CAISO HV costs, RPS costs). Are you open to adjusting these? The use of the avoided cost calculator and the FINDER model will need to be aligned. The Commission should provide a link to the public tool developed in Nevada.*
  - Yes, E3 has been evolving this. So long as the Commission agrees, E3 can address these issues.

- The slides took a simplified view; the avoided cost calculator will also be linked with the Public Tool.
- **Question:** *To what extent can the FINDER model or avoided cost calculator look at a specific resource at a specific location, and how does this relate to locational values?*
  - The avoided cost calculator contains a firm value of one kWh delivered at a specific place at a specific time.
  - The type of DG resource and load shapes can be determined fairly easily.
  - Locational prices are much more difficult.
- **Question:** *Many community choice aggregators (CCA) have set 33%-100% renewable goals. How would this impact the utility revenue requirement?*
  - CCAs make up their own group. They receive a 'shopping' credit to buy energy.
  - This is not a CCA model per se, but the model will include CCA customers.
  - This is mainly an adoption rate issue; there are no issues regarding the T&D component.
- **Question:** *Will the model be able to segment different customers or rate classes?*
  - There are probably 100 different rates associated with NEM, so we are proposing to aggregate most of the rates.
  - Most utilities have three non-residential categories: Small, medium and large. The small customers don't have demand charges.

## Lunch Break

### IV. Proposed Model Functionality and Structure

(Snu – E3)

#### E3 Presentation

- Tool functionality is a three step process:
  1. Determine rates.
    - Define rate structures.
    - Define distributed energy resources (DER) and energy efficiency (EE) penetration.

- One parameter must be left free to meet the revenue requirement.
- 2. Determine renewable DG costs.
- 3. Determine utility savings and costs.
- Proposed length of the analysis: Track installations through 2025; evaluate lifecycle economics through 2050.
- Proposed technology scope.
  - Solar PV, wind, biomass and biogas, battery storage coupled with solar PV (note that adding storage requires the need for a storage use case).
  - Exclude Fuel Cell NEM; for fuel cells that operate on natural gas.
- Proposed system size: Match total annual load to size of renewable DG.
- Modeling DG adoption rates and DG costs.

### Stakeholder Discussion

- **Question:** *What are the assumptions around the RPS? When talking about a TRC, will the model be able to incorporate a certain level of renewables?*
  - E3 proposes keeping 33% as a baseline.
  - E3 was not thinking about using the TRC to assess least cost methods of procuring renewables.
- **Question:** *Will fuel cells that operate on biogas still be included?*
  - Yes.
- **Question:** *What about taking on other storage technologies, such as electric vehicles or smart thermostats?*
  - E3 requests that parties include a request for this informal comments if interested in including this.
  - On some level, all of these storage applications could result in similar operating characteristics, so modeling each technology may not be necessary.
- **Question:** *Not sure how to forecast integration costs. Economies of scale are the elephant in the room; you can pay wholesale prices instead of retail prices.*
  - The Commission has an RPS calculator tool that provides a least-cost portfolio based on a given RPS percentage.



- The Public Tool will look at the incremental value of DG as well as the impact on rates.
- **Comment:** *The 2013 NEM study model was difficult to use, even for an experienced economist. Suggest looking at the recent Nevada NEM Tool. Strongly support lifecycle analysis of DERs, but would also like to be able to look at a single year snapshot, representing only the installations from a given year and their lifecycle costs and benefits.*
- **Comment:** *There should be an effort to push the deployment of renewables as part of the successor tariff. We should look to encourage surplus generation.*
- **Comment:** *We should have the ability to increase the RPS percentage in the tool.*
- **Comment:** *Small hydro should be included in the Public Tool.*
  - E3 will look into including hydro, assuming sufficient data is available, and requests that parties note in formal comments whether this data could be provided.
- **Question:** *Calculating storage benefits is often based on specific use cases under certain conditions. Storage has a lot of benefits that are not limited to behind the meter, such as addressing peak capacity issues.*
  - All of this can be modeled. The larger issue is determining whether what is included in the model, in terms of optimizing storage with the grid, is what's actually put into practice.
- **Question:** *Is there a way to model the unique load profiles of schools?*
  - Data on schools would first need to be provided, and the CPUC would need to prioritize taking a deeper dive into this particular customer segment in order to pursue this.
- **Question:** *Are you intending to update the avoided cost values, such as an update to the RPS to include the most recent IOU procurements?*
  - E3 requests parties provide feedback on this in their formal comments.
  - Natural gas prices will likely be updated. Addressing the RPS question is more difficult, since it gets to the question of defining the overall renewables share moving forward.

## V. Pricing Mechanisms for the Public Tool

(Michele Chait – E3)

### E3 Presentation (Part I: Residential Rate Designs)

- Three steps in rate design:
  1. Determine the revenue requirement, based on utility cost of service or marginal costs (How big is the pie?).
  2. Cost allocation to the customer level (How to divide the pie?).
  3. Rate design (What is the recipe?).
    - a. There are multitudes of ways for the utilities to recover the revenue requirement.
- Two proposed categories of compensation: NEM and FiT
- For residential rates, we propose to include:
  - Existing rate designs, the, rates proposed in the residential rates OIR, marginal cost-based components, and specific rate components (fixed or minimum charge).
- For rate design options that would only be applicable to customer-generators as part of the successor tariff or contract, we propose to include:
  - Grid/network use charge on exports (\$/kW or \$/kWh).
  - Non-bypassable public purpose charge.
  - Standby charge (for non-residential).

### Stakeholder Discussion (Part I: Residential Rate Designs)

- **Question:** *There's a large range of marginal costs in marginal cost based rate design. Currently netting is done on an annual basis; can the netting period be done on a different basis? Can the compensation be asymmetric for imports and exports?*
  - The netting can be done down to the hour.
  - Yes, E3 will be able to model asymmetric compensation.
- **Comment:** *Would like to see a three tier residential rate. If doing a FiT, would like to do hourly netting on a request basis.*
- **Comment:** *Revenue requirement allocation is a black box; there is no good formula for basing revenue requirements on what actually comes out of a GRC. The cost allocation to class is not formulaic; they are settled.*

### E3 Presentation (Part II: Non-Residential Rates, FiT designs, and Disadvantaged Communities)

- For non-residential rates, the straw proposal proposes to include:
  - Existing rate designs and marginal cost-based rate components.
- Public Tool will be able to model asymmetric compensation.
- FiT values can be structured in many different ways; propose including a value-based FiT and a cost-based FiT.
- Propose using the California Air Resources Board (CARB) definition to define disadvantaged communities. Could also include the California Solar Initiative (CSI) Single-Family and Multi-Family Solar Homes (SASH and MASH) programs as a model.
- Propose including current rules for multi-family and contiguous accounts (i.e., Virtual Net Metering and NEM aggregation).

### Stakeholder Discussion (Part II: Non-Residential Rates, FiT designs, and Disadvantaged Communities)

- **Comment:** *Should remove the proposal to include non-residential tiered demand charges, since this is not practiced in California (Others in the room agreed with this statement). The network use charge on exports should also be removed, since it is discriminatory.*
  - E3 will remove the tiered demand charge.
  - (Ehren) The applicability of a network use charge is an issue that needs to be determined through the formal record. To the extent that we think it could be incorporated, we want to make sure the Public Tool is capable of modeling it.
- **Comment:** *If there are other ways to incentivize DG adoption (similar to CSI incentives), these should be included in the model.*
- **Comment:** *PDP rates (TOU and CPP combo) should be included in the model.*
- **Comment:** *The Commission might want to consider a legal briefing in the review. Is a network use charge or value of solar tariff legal?*
- **Comment:** *Even Karl Rabago, an expert/leader on value of solar tariffs, hasn't heard of the idea to do more load shifting instead of exporting power. In Colorado, they are doing a hearing on net metering interconnection charges. We need to think about how the added costs of integration are distributed across participants.*

- **Comment:** *Schools should be considered as part of the disadvantaged communities provision, particularly schools with a high proportion of kids that qualify for free or reduced lunch.*
- **Comment:** *Suggest using SB 43 to define disadvantaged communities.*
- **Comment:** *Additional input from environmental justice communities is needed prior to deciding upon a definition of 'disadvantaged communities' to be included in the Public Tool.*